FOR QUALITY & EXCELLENCE IN HIGHER EDUCATION
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# BANGALORE UNIVERSITY
## DEPARTMENT OF CIVIL ENGINEERING

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JNANA BHARATHI
BANGALORE - 560 056

**BUB/CTE/2014-15**

**1. TESTING OF FINE AGGREGATES :** **Date: 12-01-2015**

**Sub**: Testing of Fine Aggregates.
{Project*: Construction of Culverts and Repairs, Reconstruction of Secondary Nala in Ward No.11 (Kuvempunagara) Vidyaranyapura Sub Division}

**Ref.** : Letter No. Testing/BUB/2014-15, dated 07-01-2015

Sample supplied to lab by : Assistant Executive Engineer,
Vidyaranyapura Sub Division,
BBMP, Bangalore

Name of the Contractor/Agency*: Sri.Mohan Kumar.V, Contractor, Bangalore.

**TABLE - 1.1 : SIEVE ANALYSIS :**

| IS Sieve Size, mm | Percentage Passing | Specification as Per IS: 383-1970(Reaffirmed 2002) Percentage Passing | | | Remarks |
|---|---|---|---|---|---|
| | | Zone-I | Zone-II | Zone -III | |
| 04.75 | 97.80 | 90-100 | 90-100 | 90-100 | The Sample Conforms to Grading **Zone-II** |
| 02.36 | 83.60 | 60-95 | 75-100 | 85-100 | |
| 01.18 | 74.10 | 30-70 | 55-90 | 75-100 | |
| 600. mic | 47.90 | 15-34 | 35-59 | 60-79 | |
| 300.mic | 21.00 | 5-20 | 8-30 | 12-40 | |
| 150.mic | 2.80 | 0-10 | 0-10 | 0-10 | |

**TABLE 1.2 ;**

| Sl No | Test Conducted | Sample | Results | Requirements as Per IS. Specification IS :383-1970 (Reaffirmed 2002) |
|---|---|---|---|---|
| 1 | Silt Content | 001 | 1.44 % | Not more than 8% |
| 2. | Specific Gravity | ---- | 2.52 | ------- |

*As Furnished by Client.
The Results relate only to the items tested.

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12/01/2015

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**BUB/CTE/2014-15**

**1. TESTING OF COARSE AGGREGATES ( 40 mm):** **Date: 12-01-2015**

**Sub**: Testing of Coarse Aggregates.
{Project*: Construction of Culverts and Repairs, Reconstruction of Secondary Nala in Ward No.11 (Kuvempunagara) Vidyaranyapura Sub Division}

**Ref.** : Letter No. Testing/BUB/2014-15, dated 07-01-2015

Sample supplied to lab by : Assistant Executive Engineer,
Vidyaranyapura Sub Division,
BBMP, Bangalore

Name of the Contractor/Agency*: Sri.Mohan Kumar.V, Contractor, Bangalore.

**Table - 1.1 : SIEVE ANALYSIS** :

| IS Sieve Size, mm | Percentage passing | Requirements as per IS 383-1970 (Reaffirmed on 2002) % Passing | |
|---|---|---|---|
| | 40 mm Sample | *Single size* | *Graded* |
| 40mm | 96.80 | 85-100 | 95 – 100 |
| 20mm | 62.30 | 0 -20 | 30- 70 |
| 10mm | 26.10 | 0 -5 | 10- 35 |
| 4.75mm | Nil | ------ | 0 - 5 |

**TABLE 1 2 :**

| SL No | Test conducted | Sample No | Results | Requirements as per IS:383-1970 & Test Conforms to IS 2386( Part I to IV) – 1963 ( Reaffirmed on 2002) |
|---|---|---|---|---|
| 1. | Flakiness Index | As above | 15.30 % | Not to exceed 25 % |
| 2. | Crushing value | ----,,---- | 26.00 % | Not to exceed 45 % for concrete other than for wearing surfaces and 30% for concrete for wearing surfaces |

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**BUB/CTE/2014-15**

## 1. TEST REPORT ON CEMENT:

**Date: 16-01-2015**

**Sub:** Testing of 53 Grade Cement Sample (IS 12269-1987).
{Project*: Construction of Culverts and Repairs, Reconstruction of Secondary Nala in Ward No.11 (Kuvempunagara) Vidyaranyapura Sub Division}

**Ref.** : Letter No. Testing/BUB/2014-15, dated 07-01-2015

Sample supplied to lab by : Assistant Executive Engineer,
Vidyaranyapura Sub Division,
BBMP, Bangalore

Name of the Contractor/Agency*: Sri.Mohan Kumar.V, Contractor, Bangalore.

### PHYSICAL TESTS ON CEMENT

Brand* : Birla
Grade * : 53
Type * : OPC
Date : 08-01-2015 to 15-01-2015

| SL No | Name of Test | Results | Requirements as per IS 12269-1987 |
|---|---|---|---|
| | | Cement Sample | |
| 1 | Initial setting time | **145 min** | Shall not be less than 30 min |
| 2 | Final setting time | **255min** | Shall not be more than 600 min |
| 3 | Fineness (by dry sieving on IS 90 micron sieve) | **2.20 %** | Not to exceed 10.0% |
| 4 | Soundness test(by Le-Chatelier's method) | **1.80 mm** | Shall not be more than 10 mm |
| 5 | Compressive strength<br>e) 3 days (average of three results)<br>f) 7 days ( average of three results) | **29.40 N/ Sq mm**<br>**40.60 N/Sq mm** | Shall not be less than 27 N/Sqmm<br>Shall not be less than 37N/Sqmm |

*As Furnished by Client.
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**BUB/CTE/2014-15** **Date: 12-01-2015**

**1. TEST REPORT ON REINFORCEMENT STEEL:**

**Sub**: Testing of Reinforcement Steel of diameter 10mm.
{Project*: Construction of Culverts and Repairs, Reconstruction of Secondary Nala in Ward No.11 (Kuvempunagara) Vidyaranyapura Sub Division}

**Ref.** : Letter No. Testing/BUB/2014-15, dated 07-01-2015

Sample supplied to lab by : Assistant Executive Engineer,
Vidyaranyapura Sub Division,
BBMP, Bangalore

Name of the Contractor/Agency*: Sri.Mohan Kumar.V, Contractor, Bangalore.

**TABLE – 1**

| SL No | Details | For 10mm | |
|---|---|---|---|
| | | **Test Results** | Min Req as per IS 1786-2008 |
| 01 | Observed diameter of bar | **10.0mm** | 10.0mm |
| 02 | Observed Wt/m Length **Kg/m** | **0.622** | 0.567 |
| 03 | Proof stress/Yield stress, fy , **N/mm$^2$** | **556.0** | 500.0 |
| 04 | Bend/ Re bend Test | **Ok** | --- |
| 05 | Percentage of Elongation, % | **20.70** | 12.00 |
| 06 | Ultimate Tensile Strength **N/mm$^2$** | **622.0** | 545.0 |

*As furnished by Client.
The Results relate only to the items tested.

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**Page No. 1/1,**

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**BUB/CTE/2014-15**

**DATE: 18-02-2015**

## 1. TEST REPORT ON CEMENT CONCRETE CUBES:

**Sub**: Testing of Concrete Cubes (28 days Compressive Strength)
{Project*: Construction of Culverts and Repairs, Reconstruction of Secondary Nala in Ward No.11 (Kuvempunagara) Vidyaranyapura Sub Division}

**Ref.** : Letter No. Testing/BUB/2014-15, dated 07-01-2015

Sample supplied to lab by : Assistant Executive Engineer,
Vidyaranyapura Sub Division,
BBMP, Bangalore

Name of the Contractor/Agency*: Sri.Mohan Kumar.V, Contractor, Bangalore.

### RESULTS OF COMPRESSIVE STRENGTH ON CEMENT CONCRETE

### CUBE SPECIMENS

Dimensions of Specimen : 150 X 150 X 150mm

Grade of Concrete* : $M_{20}$

**TABLE 1.1 :**

| Sl No | Location/ Identification * | Date of Casting* | Date of Testing | Age in Days | C/S Area in $Mm^2$ | Maximum Load in K.N | Compressive Strength ($N/mm^2$) | Avg. Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 001 | 19-01-15 | 16-02-15 | 28 | 22500 | 530 | 23.55 | **23.33** |
| | 002 | " | " | " | " | 520 | 23.11 | |
| | 003 | " | " | " | " | 525 | 23.33 | |

*As Furnished by Client.
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